

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Martin Moynihan (Reg. No. 40,338) on 5/19/09.

The application has been amended as follows:

IN THE CLAIMS:

1. (Currently Amended) A method for authenticating an authentic article having an authentication mark, comprising the steps of:

- (a) acquiring a set of hyper-spectral images of at least a part of the authentication mark, by using a spectral imaging and analysis system operative according to a hyper-spectral mode of spectral imaging and analysis, said system includes a central programming and control/data/information signal processing unit for acquiring, processing and analyzing, generating, and database storing of, hyper-spectral imaging data and information, said set of hyper-spectral images is stored in a single-authentication mark spectral image database of said central programming and signal processing unit;
- (b) forming a set of single-authentication mark hyper-spectral fingerprint data from said set of acquired hyper-spectral images of said hyper-spectrally imaged authentication mark, by using said central programming and signal processing unit, and storing said set of single-authentication mark spectral

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- fingerprint data in a single-authentication mark spectral fingerprint database of said central programming and signal processing unit;
- (c) identifying at least one spectral shift in said set of single-authentication mark hyper-spectral fingerprint data associated with said hyper-spectrally imaged authentication mark, for forming an intra-authentication mark physicochemical region group including a plurality of sub-sets of intra-authentication mark hyper-spectral fingerprint pattern data, such that value of at least one selected data element in each said sub-set is shifted relative to value of each corresponding said data element in each remaining said sub-set in same said intra-authentication mark physicochemical region group, by using said central programming and signal processing unit, and storing said intra-authentication mark physicochemical region group data in a intra-authentication mark physicochemical region group database of said central programming and signal processing unit;
- (d) forming a set of intra-authentication mark physicochemical properties and characteristics data relating to said hyper-spectrally imaged authentication mark, by performing pattern recognition and classification analysis on said intra-authentication mark physicochemical region group of said hyper-spectrally imaged authentication mark, by using said central programming and signal processing unit, and storing said set of intra-authentication mark physicochemical properties and characteristics data in an intra-authentication mark physicochemical properties and characteristics data database of said central programming and signal processing unit; and
- (e) comparing and matching values of elements in said set of intra-authentication mark physicochemical properties and characteristics data relating to said hyper-spectrally imaged authentication mark to values of corresponding reference elements in a reference set of intra-authentication mark physicochemical properties and characteristics

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data of the authentic article, thereby authenticating the authentic article, by using, and storing results thereof in, said central programming and signal processing unit.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Preliminary Amendment

3. Preliminary amendment filed on 5/01/08 has been entered.
- Claims 2- 23 are new claims.
- Claims 1- 23 are pending in the application.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 11/14/07, the information disclosure statement is being considered by the examiner.

Drawings

5. The Examiner has approved drawings filed on 6/1/06.

Reason For Allowance

6. The following is an examiner's statement of reasons for allowance:

The present invention is directed to a method for authenticating an authentic article having an authentication mark. The closest prior art, Smith (US. 7, 035,428 B1) discloses workpiece authentication based upon one or more workpiece images. Kerns et al., (US. 7,038,766 B2) disclose identification particles and system and method for retrospective identification using spectral codes. However, Smith and Kerns fails to teach (a) acquiring a set of hyper-spectral images of at least a part of the authentication mark, by using a spectral imaging and analysis system operative according to a hyper-spectral mode of spectral imaging and analysis, said system includes a central programming and control/data/information signal processing unit for acquiring,

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processing and analyzing, generating, and database storing of, hyper-spectral imaging data and information, said set of hyper-spectral images is stored in a single-authentication mark spectral image database of said central programming and signal processing unit;

(b) forming a set of single-authentication mark hyper-spectral fingerprint data from said set of acquired hyper-spectral images of said hyper-spectrally imaged authentication mark, by using said central programming and signal processing unit, and storing said set of single-authentication mark spectral fingerprint data in a single-authentication mark spectral fingerprint database of said central programming and signal processing unit;

(c) identifying at least one spectral shift in said set of single-authentication mark hyper-spectral fingerprint data associated with said hyper-spectrally imaged authentication mark, for forming an intra-authentication mark physicochemical region group including a plurality of sub-sets of intra-authentication mark hyper-spectral fingerprint pattern data, such that value of at least one selected data element in each said sub-set is shifted relative to value of each corresponding said data element in each remaining said sub-set in same said intra-authentication mark physicochemical region group, by using said central programming and signal processing unit, and storing said intra-authentication mark physicochemical region group data in a intra-authentication mark physicochemical region group database of said central programming and signal processing unit;

(d) forming a set of intra-authentication mark physicochemical properties and characteristics data relating to said hyper-spectrally imaged authentication mark, by performing pattern recognition and classification analysis on said intra-authentication mark physicochemical region group of said hyper-spectrally imaged authentication mark, by using said central programming and signal processing unit, and storing said

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set of intra-authentication mark physicochemical properties and characteristics data in an intra-authentication mark physicochemical properties and characteristics data database of said central programming and signal processing unit; and

(e) comparing and matching values of elements in said set of intra-authentication mark physicochemical properties and characteristics data relating to said hyper-spectrally imaged authentication mark to values of corresponding reference elements in a reference set of intra-authentication mark physicochemical properties and characteristics data of the authentic article, thereby authenticating the authentic article, by using, and storing results thereof in, said central programming and signal processing unit, as recited in claim 1, the prior art of record fails to teach either singularly or in combination, fails to anticipate or render the above limitations obvious.

Claims 1-23 is allowed.

7. Any comments considered necessary by applicant must be submitted on later than the payment of the issue fee and to avoid processing delays should preferably accompany the issue fee. Such submissions should be clearly labeled, comments on statement of reasons for allowance.

Other prior art cited

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Liang et al., (US. 5,666,417) discloses fluorescence authentication reader with coaxial optics.

Mcinerney et al., (us. 7,079,230 B1) discloses portable authentication device and method of authenticating products or product packaging.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHEELA C. CHAWAN whose telephone number is (571)272-7446. The examiner can normally be reached on 7.30- 5.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sheela C Chawan/

5/18/09

Primary Examiner, Art Unit 2624

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